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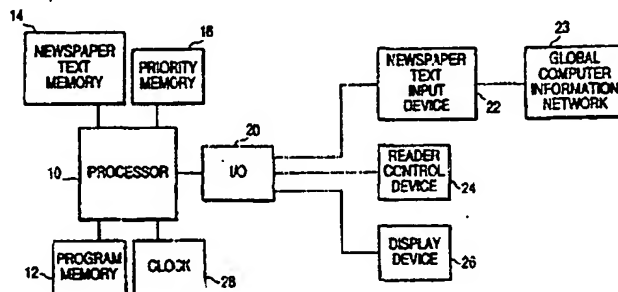
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(54) Title: METHOD OF AND SYSTEM AND APPARATUS FOR PRESENTING NEWSPAPER TEXT IN AN ELECTRONIC BOOK FORMAT



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(57) Abstract: A method of and a system and apparatus for presenting newspaper text to a reader in an electronic book format. The newspaper text is received in a digital format and sorted into display segments based on priorities assigned by the reader. One of the display segments is selected for display and is then displayed. Selection of a segment and displaying of the selected segment is repeated to display all the desired segments. Preferably, the reader assigns priorities to the display segments, for example based on subject matter or on sections of the newspaper text such as the sports section, the world news section, and the business section. Alternatively, priorities can be automatically assigned based on a particular reader's reading custom, as monitored by the apparatus. The newspaper text is then sorted and displayed based on the assigned priorities. The apparatus includes a processor, a program memory, a newspaper text memory, a priority memory, a display device, and input devices from receiving the newspaper text and for assigning priorities and controlling the display. The newspaper text input device can be a telephone, such as cellular telephone, for receiving the newspaper text from a global computer information network. If archived newspaper text is to be read, the input device can be a disk drive for reading the text from a computer disk. The system can transmit the newspaper text as a television signal to apparatus for displaying the newspaper text in an electronic book format.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F17/21

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system, followed by classification symbols)

IPC 7 G06F H04M

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 924 068 A (HANSON BRIAN A ET AL) 13 July 1999 (1999-07-13) abstract column 1	1-50
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 677 (P-1659), 13 December 1993 (1993-12-13) & JP 05 225243 A (NIPPON TELEGR & TELEPH CORP), 3 September 1993 (1993-09-03) abstract -/-	1-50

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MORIN J -H: "HyperNews, a hypermedia electronic-newspaper environment based on agents" PROCEEDINGS OF THE THIRTY-FIRST HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (CAT. NO.98TB100216), PROCEEDINGS OF THE THIRTY-FIRST HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES, KOHALA COAST, HI, USA, 6-9 JAN. 1998, pages 58-67 vol.2, XP002171033 1998, Los Alamitos, CA, USA, IEEE Comput. Soc, USA ISBN: 0-8186-8255-8 page 58	1-50
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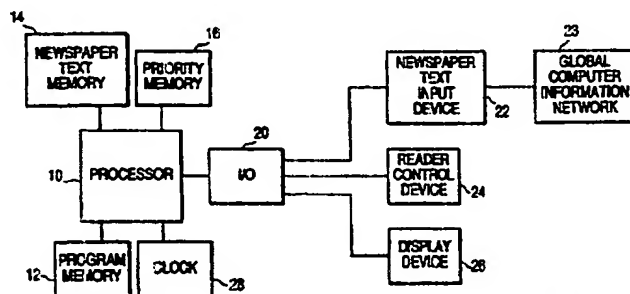
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(54) Title: METHOD OF AND SYSTEM AND APPARATUS FOR PRESENTING NEWSPAPER TEXT IN AN ELECTRONIC BOOK FORMAT



(57) Abstract: A method of and a system and apparatus for presenting newspaper text to a reader in an electronic book format. The newspaper text is received in a digital format and sorted into display segments based on priorities assigned by the reader. One of the display segments is selected for display and is then displayed. Selection of a segment and displaying of the selected segment is repeated to display all the desired segments. Preferably, the reader assigns priorities to the display segments, for example based on subject matter or on sections of the newspaper text such as the sports section, the world news section, and the business section. Alternatively, priorities can be automatically assigned based on a particular reader's reading custom, as monitored by the apparatus. The newspaper text is then sorted and displayed based on the assigned priorities. The apparatus includes a processor, a program memory, a newspaper text memory, a priority memory, a display device, and input devices from receiving the newspaper text and for assigning priorities and controlling the display. The newspaper text input device can be a telephone, such as cellular telephone, for receiving the newspaper text from a global computer information network. If archived newspaper text is to be read, the input device can be a disk drive for reading the text from a computer disk. The system can transmit the newspaper text as a television signal to apparatus for displaying the newspaper text in an electronic book format.

**METHOD OF AND SYSTEM AND APPARATUS FOR PRESENTING NEWSPAPER
TEXT IN AN ELECTRONIC BOOK FORMAT**

5 **Technical Field**

The present invention pertains to a method of and a system and apparatus for presenting newspaper text to a reader in an electronic book format. More particularly, the present invention pertains to a method of and a system and apparatus for presenting newspaper text in an electronic book format in a sequence selected by a reader, so that the reader can review the newspaper text in
10 any sequence that he or she wishes.

Many people regularly read one or more newspapers. If such a person is in a location in which he or she can obtain a paper copy of the desired newspaper, then that person can readily read through the newspaper, thoroughly reading articles of particular interest, scanning articles of lesser interest, and skipping articles of no interest. Many newspapers come in several sections, such as a
15 world news section, a local news section, a sports section, a business section, and a section having such things as travel, entertainment, art and other features. Some readers will commence reading the newspaper with the first section of the paper and continue through each section in sequence. Other readers might first read a section of particular interest, such as the sports section.

Often a person wishing to read a newspaper, or a particular newspaper, is in a location where
20 either no newspaper is available or the particular newspaper of interest is not available. By way example, a person traveling for business or pleasure a considerable distance from his or her home town might wish to read the hometown newspaper, but not be able to obtain it at the remote location. Such a traveler might also want to read a business newspaper so as to keep abreast of business developments of interest.

25 The recent advent of electronic books makes textual material available to persons not having ready access to the printed text on paper. United States Patents Nos. 5,239,665, 5,761,485, 5,774,109, and 5,847,698, the disclosures of which are incorporated herein by reference, disclose

such electronic books. In such electronic books, textual material is displayed on a display screen in a display similar to a book page. The text material can be provided to the electronic book in any of various manners. By way of examples, the textual material can be provided in the form of digital data on a magnetic disk or from an information terminal, as disclosed in United States Patent No. 5,239,665. Likewise, data might be obtained from a terrestrial data network or a global computer information network, for example from the Internet, through a telephone connection. A cellular telephone might be built into the electronic book, as depicted in United States Patent No. 5,761,485.

Many newspapers have electronic editions that can be downloaded from a global computer information network, such as the Internet. Typically, however, such an electronic edition commences with a "first page" that contains headlines or brief summaries of articles, with links to other pages that contain the full articles. This format of these electronic newspapers makes it difficult and time consuming for a person to locate and read all articles of particular interest because of the numerous links that are required. Once the reader has finished one article, it is often necessary for him or her to return to a previous page so as to obtain a link to another article of interest. By way of example, a reader having a particular interest in sports might first have to use a link from the first page of the electronic edition of the newspaper to the sports section. Then that reader might have to scan headlines of various articles about sports and link to an article of interest. Once the reader has finished that article, he or she must return to the first page of the sports section, scan more headlines, and link to other sports articles of interest, returning to the sports section first page between articles. Once the reader has finished the articles in a first section of interest, such as the sports section, he or she must return to the newspaper first page and then link to another section of the paper having articles of interest, for example the business section. This is time consuming and frustrating for the reader. Further, the reader might overlook or not locate an article that would be of interest.

Disclosure Of the Invention

The present invention is a method of and a system and apparatus for presenting newspaper

text to a reader in an electronic book format, with various articles presented in a sequence determined by priorities selected by the reader. In accordance with the present invention, based on the reader's preferences priorities can be assigned to the portions of the newspaper text, such as the sports section, the world news section, the business section, etc. Within each section priorities can then be assigned to articles on specific subjects, such as articles about a particular sports team, a particular world news subject, a particular industry or company, etc. The newspaper text is received and sorted into display segments based on the priorities. Based on the priorities assigned by the reader, one of the display segments is selected for display, converted into electronic book format, and displayed. Once the reader has finished reading that display segment, he or she can cause another display segment to be selected and displayed. This is continued until the reader has read all of the display segments of interest. Each display segment might be one complete article from the newspaper, or it might be one complete section of the newspaper.

The apparatus in accordance with the present invention includes a processor to which are connected a reader control device for enabling the reader to assign priorities to different sections of the newspaper and to different subjects within each section and to initiate and control display of the newspaper text, a newspaper text input device for inputting the newspaper text, and a display device for displaying the newspaper text. The apparatus further includes a priority memory for storing the assigned priorities and a newspaper text memory for storing the newspaper text as it is received.

The system of the present invention permits transmission of newspaper text via a television signal, transmitted either over the air or via cable, for display on an electronic book or on a television receiver.

Brief Description of the Drawings

These and other aspects and advantages of the present invention are more apparent from the following detailed description and claims, particularly when considered in conjunction with the accompanying drawings. In the drawings:

Figure 1 is a block diagram of a preferred embodiment of an apparatus for receiving and presenting newspaper text to a reader in an electronic book format in accordance with the present invention;

Figure 2 is a flow chart of a preferred embodiment of a method of presenting newspaper text to a reader in an electronic book format in accordance with the present invention;

Figure 3 is a block diagram of a first preferred embodiment of a system for transmitting newspaper text via a television signal in accordance with the present invention; and

Figure 4 is a fragmentary block diagram of a second preferred embodiment of a system for transmitting newspaper text via a television signal in accordance with the present invention.

Best Mode For Carrying Out The Invention

As depicted in Figure 1, an apparatus in accordance with a preferred embodiment of the present invention includes a processor 10 having connected to it a program memory 12, which might be a read-only memory storing a program for performing the method of the present invention, a newspaper text memory 14, which might be a random-access memory for storing newspaper text, and a priority memory 16, which might be a random access memory for storing indications of a reader's priorities with regard to various portions of the newspaper as those priorities are assigned by the reader. In addition, processor 10 is coupled through input/output unit 20 to a newspaper text input device 22, a reader control device 24, and a display device 26. As is well known in the art, processor 10 is also connected to other components to cause it to function in the desired manner, such as a clock 28. Newspaper text input device 22 preferably is an input device permitting receipt of newspaper text over a global computer information network 23, such as the Internet. Thus, newspaper text input device 22 might be a telephone built into the electronic book, for example a cellular telephone, or might be a modem permitting use of a land-line telephone. Alternatively, newspaper text input device 22 and display device 26 can be part of a television receiver which is capable of receiving UHF and VHF television signals, either over the air or via cable, which the other

components of Figure 1 are accessories for such a television receiver to enable the receiver to display the newspaper text in an electronic book format. If archived newspapers are to be presented, newspaper text input device might be a magnetic disk having the archived newspaper text stored on it in digital format, in which event input/output device 20 includes a disk drive for reading the text from the magnetic disk.

Reader control device 24 permits the reader to indicate his or her priorities with respect to various portions of the newspaper and to initiate and control display of the newspaper text. By way of examples, reader control device 24 might be a keyboard, a mouse or track ball, a touch screen, or a joy stick, a television remote control, or a combination of such input devices. The assigned priorities might be certain sections of the newspaper, such as sports or business. Further, the priorities might include the reader's priorities with regard to particular subject matter within the newspaper sections. By way of example, the reader might indicate as his or her first priority the sports section, and within the sports section articles pertaining to a particular sports team or articles pertaining to sports teams in a particular city or from a particular college or university. The reader can indicate further priorities, as desired.

Display device 26 can be any suitable display screen, as is well known in the art, for example a liquid crystal display or a flat panel display. Alternatively, as indicated above, display device 26 can be the screen of a television receiver.

The method of the present invention is described with reference to Figure 2. In step 40, priorities for the newspaper text to be presented are assigned. These priorities can be based on preferences supplied by a particular reader through reader control device 24 and stored in priority memory 16. Consequently, once the priorities have been assigned and stored, step 40 does not need to be repeated each time newspaper text is to be presented, unless a change is to be made in the priorities.

Alternatively, processor 10 can monitor the reading custom of a particular reader to determine the reader's past selections, for example by noting the amount of time the reader has spent

in the past on display segments of different topics such as sports, world news and business.

Processor 10 can then automatically assign priorities based on those past selections, updating the priorities as continued monitoring indicates changes in the reader's selections. As a further alternative, no priorities need to be assigned, and instead the newspaper text can be displayed sequentially from the start of the newspaper to the finish.

At step 42, newspaper text is received through newspaper text input device 22. This newspaper text is stored in newspaper text memory 14. The newspaper text might be retained in memory 14 until the reader deletes the text. Alternatively, the newspaper text in memory 14 can be deleted when new newspaper text is received or when the electronic book is shut off.

In step 44 the newspaper text is sorted by priority, based on the priorities assigned in step 40. This sorting might divide the received newspaper text in accordance with sections of the newspaper, such as sports, business, etc., and within each section might divide the text into separate articles by subject matter. If desired, this sorting can be done as soon as the newspaper text is received, and the sorted newspaper text stored in newspaper text memory 14.

When the reader wishes to read newspaper text on the apparatus of the present invention, he or she initiates display of a segment of text by means of reader control device 24. Based on the assigned priorities, a section of the newspaper text is selected for display in step 46. Thus, for example the sports section of the newspaper might be selected as the first section. In step 48, articles within the selected section are selected for display. By way of example, articles from the sports section pertaining to a particular sports team might be selected to be displayed first. In step 50, the selected article is converted into electronic book format. This can involve simply converting the text from a code in which it is received to an alphanumeric format for display. The selected article is then displayed in step 52. Such display would involve displaying a convenient number of lines of text from the article on display device 26 and, upon receipt of an appropriate command from the reader via reader control device 24, advancing the display. Such a command might be actuation of a control on the electronic book to cause a new page of text to appear on the screen, or it might be a periodic

signal causing display of a new page of text at predetermined intervals of time. Alternatively, rather than applying a complete new page of text, the text might be scrolled upon actuation of an appropriate control, as disclosed in United States Patent No. 5,847,698, or the text might be scrolled at a predetermined scroll rate.

5 Once the complete article has been displayed, then in step 54 it is determined whether all desired articles of the selected section of the newspaper text have been displayed. If not, then the method returns to step 48, and another article is selected and displayed. If step 54 determines that all desired articles have been displayed, then in step 56 it is determined whether all desired sections of the newspaper text have been displayed. If not, then the method returns to step 46, and another
10 section of the newspaper text is selected for display, based on the assigned priorities. If step 56 determines that all desired sections of the newspaper text have been displayed, then the method comes to an end in step 58.

 Rather than waiting for the complete article to be displayed in step 52 before another article, or another newspaper section, is selected, the reader can actuate reader control device 24 to terminate
15 display of the present article and advance the method to step 54. Likewise, if the reader wishes to read articles in a sequence different from the assigned priorities, he or she can use reader control device 24 to select a particular article, a particular subject matter or a particular section for display.

 The priorities assigned in step 40 might be particular newspaper topics, such as politics, the economy, or foreign affairs. Alternatively, the priorities might be particular sections of the
20 newspaper such as the world news section, the local news section, the sports section, the business section, etc. The articles within each section might be assigned priorities based on a key word search, for example. The sorting of the newspaper sections in step 44 and the selection of newspaper sections in step 46 and articles in step 48 would be based on these priorities.

 The several steps of the method of the present invention are initiated by the reader either
25 upon opening of the electronic book or by means of reader control device 24. The steps are controlled by controller 10, which might be a properly programmed digital processor. If desired,

newspaper text memory 14 and priority memory 16 can be a single random access memory. Program memory 12 might be incorporated into the same random access memory, rather than being a read only memory, if desired.

Figure 3 illustrates a system for providing the newspaper text to the apparatus of Figure 1 or to a television receiver. The newspaper text is received on input line 70 to format conversion unit 72. The newspaper text might be received via a satellite, telephone, or other suitable transmission means in a form provided by the newspaper publisher for printing. Format conversion unit 72 converts the received signal into a suitable format for application to the system and might include buffer storage as needed. For example, if the newspaper text is to be supplied to the apparatus of Figure 1 by a global computer information network, then format conversion unit 72 converts the text to an appropriate format, such as HTML.

If the newspaper text is to be transmitted by a global computer information network, then the text in appropriate format passes from format conversion unit 72 to the network 23. Alternatively, if the newspaper text is to be transmitted by an analog television signal, then the text in appropriate format passes from format conversion unit 72 through digital-to-analog converter 74 and modulator 76 to one input of multiplexor 78. If the text is to be transmitted by a digital television signal, then the text passes from format conversion unit 72 to the second input of multiplexor 78. Multiplexor 78 provides the desired analog or digital output to television transmitter 80, which transmits the signal via antenna 82. The television signal is received by antenna 84 and applied to newspaper text input device 86. Alternatively, as depicted in Figure 4, the television signal from transmitter 80 can be transmitted by cable 88 to newspaper text input device 86.

Newspaper text input device 86 might be a set-top box, permitting the newspaper text to be displayed by a television receiver in an electronic book format. Alternatively, newspaper text input device 86 can convert the newspaper text to a format such as HTML for display on an electronic book apparatus such as that depicted in Figure 1. Reader control device can be a television-type remote controller.

It is accordingly seen that the present invention permits the presentation of newspaper text in an electronic book format to a reader, with the text presented in accordance with priorities assigned by the reader. Consequently, it is unnecessary for the reader to select various articles in an electronic edition of the newspaper by means of linking from one display screen to another. Consequently, the
5 reader can more rapidly locate and read articles of interest, while being assured of not overlooking an article of interest.

Although the present invention has been described with reference to preferred embodiments, various alternations, rearrangements, and substitutions can be made, and still to result would be within the scope of the invention.

What is claimed is:

- 1 1. A method of presenting newspaper text to a reader in an electronic book format, said
2 method comprising the steps of:
3 (a) receiving the newspaper text in a digital format;
4 (b) sorting the newspaper text into display segments;
5 (c) selecting one of the display segments for display;
6 (d) displaying the selected display segment in the electronic book format; and
7 (e) repeating steps (c) and (d) to display additional ones of the selected display segments.
- 1 2. A method as claimed in claim 1, wherein step (a) comprises receiving the newspaper
2 text from a global computer information network.
- 1 3. A method as claimed in claim 1, wherein step (a) comprises receiving the newspaper
2 text in a television transmission.
- 1 4. A method as claimed in claim 1, wherein step (b) comprises sorting the newspaper
2 text by subject matter.
- 1 5. A method as claimed in claim 1, wherein step (b) comprises sorting the newspaper
2 text by newspaper sections.
- 1 6. A method as claimed in claim 5, wherein step (b) further comprises sorting the
2 newspaper text in a newspaper section into separate articles.
- 1 7. A method as claimed in claim 1, wherein step (b) comprises sorting the newspaper

1 text in a newspaper section into separate articles.

1 8. A method as claimed in claim 1, wherein step (c) comprises selecting one of the
2 display segments based on determined priorities.

1 9. A method as claimed in claim 8, wherein step (c) includes basing the priorities on
2 subject matter.

1 10. A method as claimed in claim 8, wherein step (c) includes basing the priorities on
2 sections of the newspaper text.

1 11. A method as claimed in claim 10, wherein step (c) further includes basing priorities
2 of articles within the newspaper sections on subject matter.

1 12. A method as claimed in claim 8, wherein step (c) includes basing the priorities on
2 preferences supplied by the reader.

1 13. A method as claimed in claim 8, wherein step (c) includes basing the priorities on
2 past selections by the reader.

1 14. A method as claimed in claim 13, wherein step (c) includes basing the priorities on
2 the amount of time the reader has spent in the past on display segments of different topics.

1 15. A method as claimed in claim 1, wherein step (d) comprises scrolling the selected
2 display segment.

- 1 16. Apparatus for presenting newspaper text to a reader in an electronic book format.
2 comprising:
3 a first input device for receiving the newspaper text;
4 a processor for sorting the newspaper text received at said first input device into display
5 segments and selecting one of the display segments for display; and
6 a display device for displaying the selected display segment.
- 1 17. Apparatus as claimed in claim 16, wherein said first input device comprises a telephone.
- 1 18. Apparatus as claimed in claim 17, wherein the telephone is a cellular telephone.
- 1 19. Apparatus as claimed in claim 16, wherein said first input device receives the
2 newspaper text in a digital format.
- 1 20. Apparatus as claimed in claim 16, wherein said first input device comprises a magnetic
2 disk reader.
- 1 21. Apparatus as claimed in claim 16, wherein said first input device comprises a modem.
- 1
2 22. Apparatus as claimed in claim 16, wherein said first input device comprises a
3 television set top box.
- 1 23. Apparatus as claimed in claim 16, further comprising a second input device for
2 receiving from the reader an assignment of priorities with respect to portions of the newspaper text
3 which the reader wishes to have presented; and wherein said processor selects one of the display

4 segments for display based on the assigned priorities received at said second input device.

1 24. Apparatus as claimed in claim 23, wherein said second input device comprises a
2 keyboard.

1 25. Apparatus as claimed in claim 23, wherein said second input device comprises a mouse.

1 26. Apparatus as claimed in claim 23, wherein said second input device comprises a
2 trackball.

1 27. Apparatus as claimed in claim 23, wherein said second input device comprises a
2 television-type remote controller.

1 28. Apparatus as claimed in claim 16, wherein said processor selects one of the display
2 segments for display based on priorities determined from past selections by the reader.

1 29. Apparatus as claimed in claim 28, wherein said processor selects one of the display
2 segments for display based on priorities determined from the amount of time the reader has spent in
3 the past on display segments of different topics.

1 30. Apparatus as claimed in claim 16, wherein said display device comprises a liquid
2 crystal display device.

1 31. Apparatus as claimed in claim 16, wherein said display device comprises a flat panel
2 display device.

1 32. Apparatus as claimed in claim 16, wherein said display device comprises a television
2 receiver.

1 33. A system for presenting newspaper text to a reader in an electronic book format, said
2 system comprising:
3 a signal transmission circuit for transmitting a signal representing the newspaper text;
4 a signal input device for receiving the newspaper text signal;
5 a processor for sorting the newspaper text received at said signal input device into
6 display segments and selecting one of the display segments for display; and
7 a display device for displaying the selected display segment.

1 34. A system as claimed in claim 33, wherein said signal transmission circuit comprises
2 a global computer information network.

1 35. A system as claimed in claim 34, wherein said signal input device comprises a
2 telephone.

1 36. A system as claimed in claim 35, wherein the telephone is a cellular telephone.

1 37. A system as claimed in claim 34, wherein said signal input device comprises a
2 modem.

1 38. A system as claimed in claim 33, wherein said signal transmission circuit comprises
2 a television transmitter.

1 39. A system as claimed in claim 38, wherein said signal input device comprises a

2 television receiver.

1 40. A system as claimed in claim 38, wherein said signal input device comprises a
2 television set top box.

1 41. A system as claimed in claim 33, further comprising a second input device for
2 receiving from the reader an assignment of priorities with respect to portions of the newspaper text
3 which the reader wishes to have presented; and wherein said processor selects one of the display
4 segments for display based on the assigned priorities received at said second input device.

1 42. A system as claimed in claim 41, wherein said second input device comprises a
2 keyboard.

1 43. A system as claimed in claim 41, wherein said second input device comprises a
2 mouse.

1 44. A system as claimed in claim 41, wherein said second input device comprises a
2 trackball.

1 45. A system as claimed in claim 41, wherein said second input device comprises a
2 television-type remote controller.

1 46. A system as claimed in claim 33, wherein said processor selects one of the display
2 segments for display based on priorities determined from past selections by the reader.

1 47. A system as claimed in claim 46, wherein said processor selects one of the display

2 segments for display based on priorities determined from the amount of time the reader has spent in
3 the past on display segments of different topics.

1 48. A system as claimed in claim 33, wherein said display device comprises a liquid
2 crystal display device.

1 49. A system as claimed in claim 33, wherein said display device comprises a flat panel
2 display device.

1 50. A system as claimed in claim 33, wherein said display device comprises a television
2 receiver.

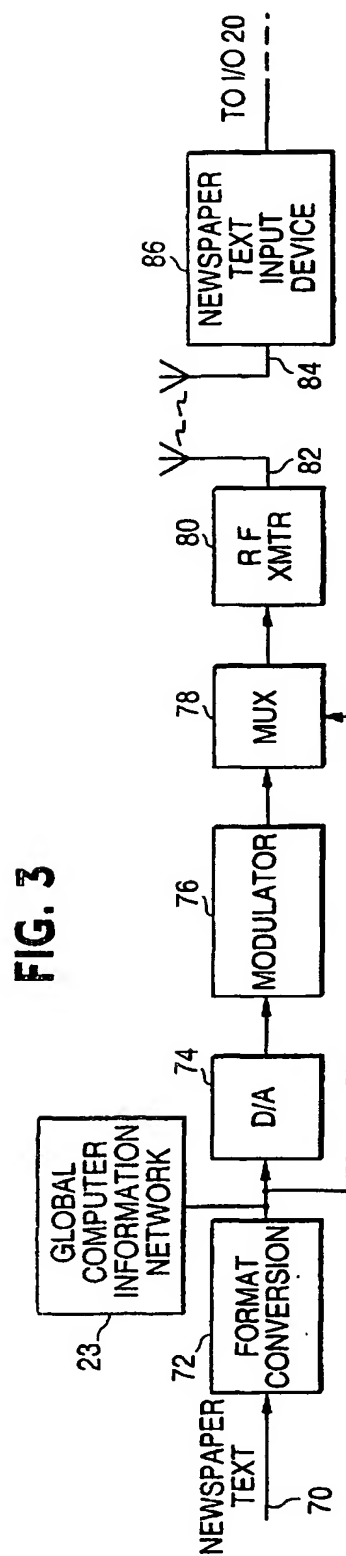
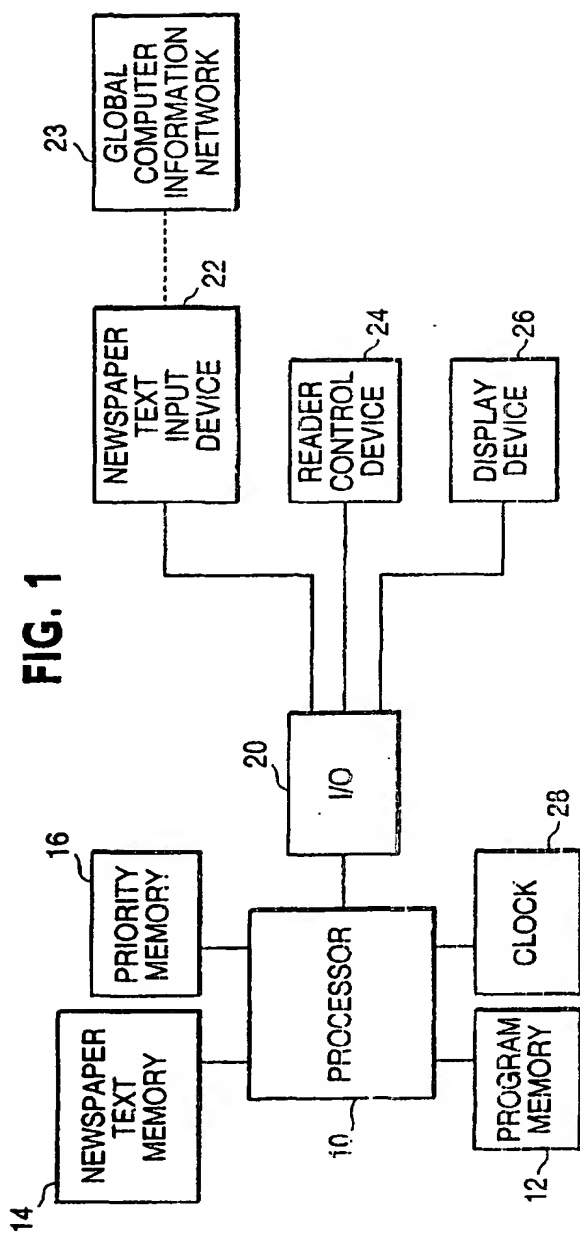


FIG. 2

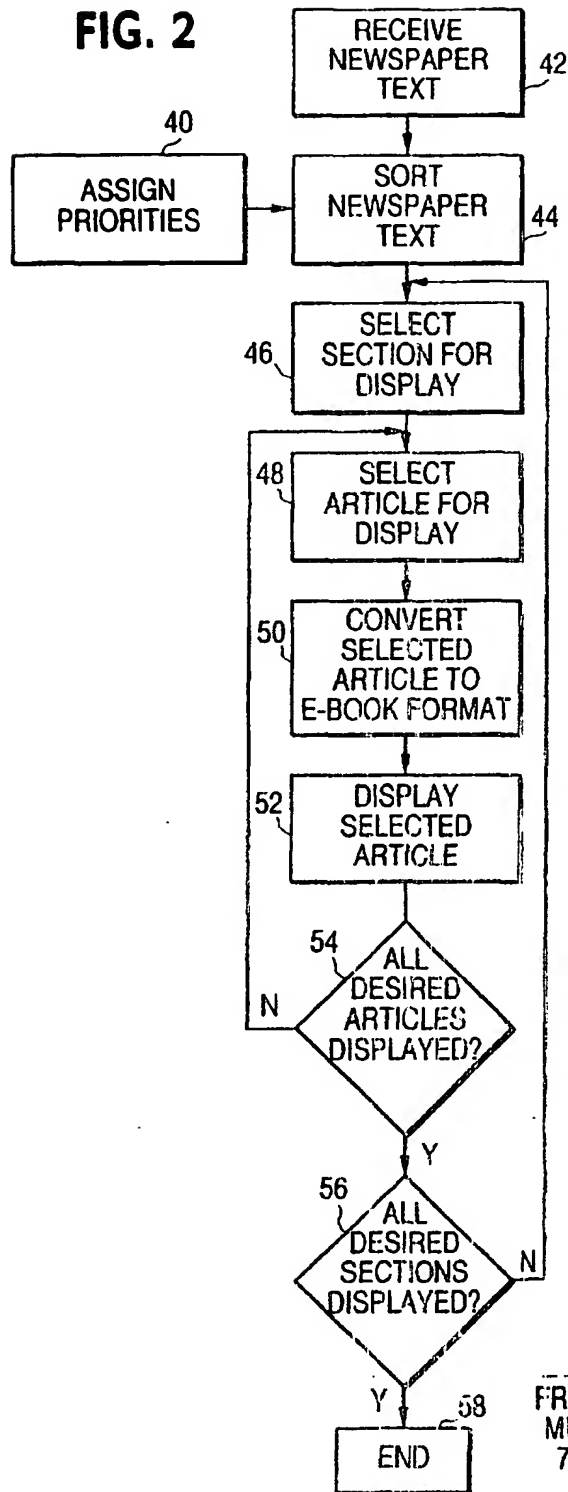


FIG. 4

